Worksheet 6: Fair Shares and Divider-Chooser
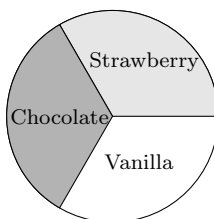
Tom and Fred were given a cake worth $12 that is equal parts strawberry, vanilla and chocolate.

1. How much value is a fair share of the cake? _____

2. Tom likes vanilla and strawberry equally, and doesn't like chocolate at all. Label the cake parts as you answer the following:

   - How much does Tom value the vanilla section of the cake? _____

   - How much does Tom value the chocolate section of the cake? _____

   - How much does Tom value the strawberry section of the cake? _____

   - Find (and draw) two *different* ways Tom could split the cake into two pieces of equal value.
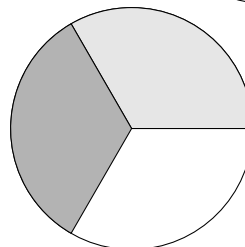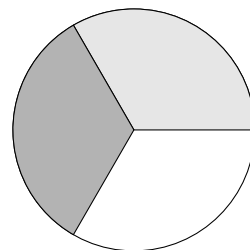
3. Fred will eat vanilla, but he likes strawberry twice as much as vanilla and he likes chocolate *three* times as much as vanilla. Label the cake parts.

   - How much does Fred value the vanilla section of the cake? _____

   - How much does Fred value the chocolate section of the cake? _____

   - How much does Fred value the strawberry section of the cake? _____

   - Find (and draw) two *different* ways Fred could split the cake into two pieces of equal value.
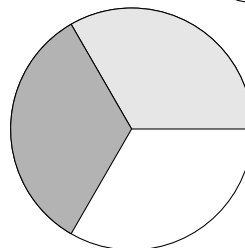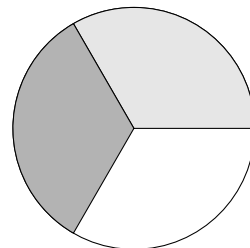
You are going to demonstrate how to divide the cake between Tom and Fred using the Divider-Chooser Method.
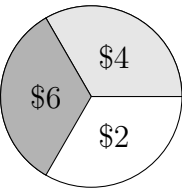
Steps:

(1) Divide the cake into two pieces of equal value according to the **Divider's** values. (Label these two pieces in both pictures).

(2) Determine which piece the **Chooser** will select according to their values.

(3) Assign the remaining piece to the **Divider**.

(4) Calculate the value of the final outcome for each person.

4. **Divider:** Tom;   **Chooser:** Fred.

Tom's Values
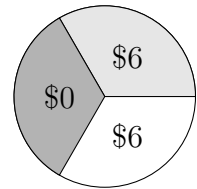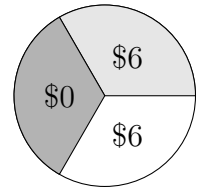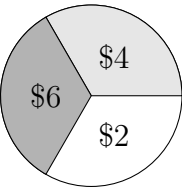

Fred's Values

Final Outcome

	Tom	Fred
share		
value		

5. **Chooser:** Tom   **Divider:** Fred;

Tom's Values

Fred's Values

Final Outcome

	Tom	Fred
share		
value		

6. Is it better to be the divider or chooser in this case? Why?

Janet's Values

7. Challenge: Suppose that another friend, Janet, likes vanilla 3 times as much as she likes strawberry and chocolate, which she likes equally. How much does she value each of the three pieces?
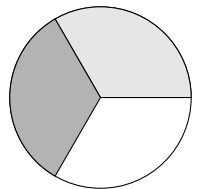
Strawberry _____ Vanilla _____ Chocolate _____